http://epa.gov/ncer/rfa/2004/2004_ecohab.html
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National Center For Environmental Research

Funding Opportunities

U. S. Environmental Protection Agency
Office of Research and Development
National Center for Environmental Research
Science to Achieve Results (STAR) Program

Coastal Ocean Program (COP) and Office of Protected Resources, National Oceanic and Atmospheric Administration (NOAA), Department of Commerce
Division of Ocean Sciences, Directorate for Geosciences, National Science Foundation (NSF)
Office of Naval Research (ONR), Department of Defense
Office of Earth Science, National Aeronautics Space Administration (NASA)

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Ecology And Oceanography Of Harmful Algal Blooms

Opening Date: October 30, 2003
Closing Date: January 28, 2004

Technical Contact:
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Susan Banahan, 301-713-3338 ext 148, susan.banahan@noaa.gov

Eligibility and Administrative Contact:
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SUMMARY OF PROGRAM REQUIREMENTS: GENERAL INFORMATION

Program Title: Ecology and Oceanography of Harmful Algal Blooms

Sorting Code: ECOHAB / 2004-STAR-C1

Synopsis of Program: The purpose of this notice is to advise the public that the participating agencies are soliciting proposals describing targeted research projects of up to 3 years duration and, depending on appropriations, multi-disciplinary regional studies for 3 to 5 years duration for the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) program. This program provides support for research on algal species whose populations may cause or result in deleterious effects on ecosystems and human health. Studies of the causes of such blooms, their detection, effects, mitigation, and control in U.S. coastal waters (including estuaries and Great Lakes) are solicited. This document details the requirements for applications for research support that will be considered by the Federal research partnership.

Contacts:

Technical Information:

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Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s): 66.509 for the Environmental Protection Agency; 11.478 for the Coastal Ocean Program; 11.472 for NOAA/Office of Protected Resources; 47.050 for the National Science Foundation, and 12.300 for the Office of Naval Research.

Eligibility Information:

See full announcement for eligibility information.

Award Information:

Anticipated Type of Award: Grant
Anticipated Funding Amount: Approximately $5 million per year
Potential Funding per Grant per Year: Awards of federal funds are typically on the order of $150,000 per year, total costs, for up to three years. Multi-disciplinary regional studies for 3 to 5 years duration at correspondingly appropriate budgets will also be considered, depending upon available appropriations.

Deadline/Target Dates:

Application Due Date: January 28, 2004

BACKGROUND

Harmful Algal Blooms (HABs) include toxic and noxious phytoplankton, some protists, cyanobacteria, and benthic algae. Evidence suggests that over the last few decades the frequency and duration of HABs have been increasing nationally and worldwide. Formerly, only a few regions of the U.S. were affected by HABs, but now virtually every coastal state has reported major blooms. In many cases, blooms extend over large geographic areas, are sometimes contiguous with those in Mexican and Canadian waters, and are composed of more than one harmful or toxic species. Furthermore, HABs are not unique to the U.S. and have attracted interest from many countries that have commercial and recreational activities in the coastal ocean. Impacts from these blooms have resulted in international support for a global research effort on these organisms, i.e., GEOHAB (Global Ecology and Oceanography of Harmful Algal Blooms) (http://www.jhu.edu/scor/GEOHABfront.htm) and Cooperative Activities in Environmental Research between the National Science Foundation and the European Commission: Ecology and Oceanography of Harmful Algae (http://www.whoi.edu/redtide/announcements/trieste-workshop.html).

Although several regional research efforts are underway, our understanding of the biological, physical, and chemical processes that regulate HABs remains limited. Toxic blooms can impact virtually all compartments of marine foodwebs, resulting in adverse effects on metabolism, viability, growth, fecundity, and recruitment of marine organisms. HAB-produced toxins can have immediate, acute impacts on marine populations, including marine mammals, birds, and several protected species. Little is known about the effects of chronic low level low-level exposure. Dramatic shifts in the structure of an ecosystem can accompany plankton blooms and macroalgal overgrowth in benthic systems. In this context, our present knowledge is inadequate to define the scale and complexity of many HAB phenomena.

HAB impacts on public health and local/regional economies are also dramatic and increasing. In a recent study, average annual economic losses in the U.S. from HABs were approximated at $42 million with costs attributable to maintenance of toxin monitoring programs, closures of shellfish beds, marine mammal stranding networks, collapse of some fisheries, mortality of fish, shellfish, turtles, birds, and mammals, disruptions in tourism, threats to public and coastal resource health, publication of watershed, health, and seafood advisories, and medical treatments (Anderson et al. 2000, available at http://www.whoi.edu/redtide/pertinentinfo/Economics_report.pdf) (PDF, 96pp., 1.08 MB, about PDF). Despite greater public awareness and advisories, human illness and even fatalities continue to be reported. Some toxins may cause only a few documented illnesses, but result in serious public reaction and temporary aversion to local seafood products and activities (e.g., $43 million in lost revenue from the 1997 Maryland fish health/Pfiesteria events).

These large impacts have increased public awareness and demand for intervention to reduce or eliminate bloom impacts on coastal resources, local economies, and threats to public health. As a result, there needs to be additional focus on early detection of bloom species, environmental conditions supporting blooms, and toxins associated with some of the toxin-producing species. Further, there is increasing emphasis on manipulating coastal waters to prevent or control the blooms, common in management practices of other nations but practically non-existent in U.S. coastal waters. Finally, there needs to be greater emphasis on ensuring that coastal managers and the public are provided the most current information available in a manner that will maximize its usefulness in mitigating HAB impacts. This would include projections of bloom landfall as a preliminary step in the development of HAB forecasts.

A series of reports describe the national urgency and develop research plans to address various aspects of

the problem.
1. *Marine Biotoxins and Harmful Algae: A National Plan* (Anderson, D.M., S.B. Galloway, and J.D. Joseph. 1993. WHOI Technical Report 93-02, Woods Hole Oceanographic Institution, Woods Hole, MA 44 pp. http://www.redtide.whoi.edu/hab/nationplan/s-kplan/s-kcontents.html)
2. *ECOHAB, the Ecology and Oceanography of Harmful Algal Blooms* (Anderson, D.M. 1995. WHOI, Woods Hole, MA, 66 pp.) http://www.redtide.whoi.edu/hab/nationplan/ECOHAB/ECOHABhtml.html
3. *Harmful Algal Blooms in Coastal Waters: Options for Prevention, Control, and Mitigation* (Boesch, D.F. et al 1997. NOAA COP Decision Analysis Series No.10, NOAA Coastal Ocean Office, Silver Spring, MD 46 pp.)
4. *Prevention, Control, and Mitigation of Harmful Algal Blooms: A Research Plan* (NOAA National Sea Grant College Program. 2001. 28pp.)
5. *National Assessment of Harmful Algal Blooms in U.S. Waters* (National Science and Technology Council Committee on Environmental and Natural Resources. October 2000. 38pp.).

Since 1997, the ECOHAB Program has sponsored over 70 projects with topics ranging from molecular aspects of HAB detection to large-scale, multi-disciplinary regional studies of bloom formation, maintenance, and dissipation. Projects cover a wide spatial spectrum along the U.S. coastline and its territories. ECOHAB sponsored projects also address the detection, prevention, control, and mitigation of HABs and their impacts, as well as economic assessments of these recurring events. Project summaries may be viewed at http://www.redtide.whoi.edu/hab/nationplan/ecohabprojectsummaries.html.

AGENCY INTERESTS

To address the increased need for research on HABs, NOAA, NSF, EPA, ONR, and NASA combine each agency's unique interests and missions into this coordinated research program. The interests of each agency are defined in the following paragraphs:

NOAA -- HABs and related biotoxin risk must be managed if we are to ensure public health, build viable and valuable sustainable fisheries, protect living marine resources including threatened and endangered species, and effectively manage coastal activities and resources. NOAA's interest is in developing general understanding of HABs and their relationships to the surrounding environment. Additionally, interest also includes development and application of effective techniques for prevention, control, and mitigation to assist in reducing the impacts of HABs on coastal ecosystems (living marine resources and coastal habitats) and public health, and ensuring that the information is delivered to the public and the coastal management community in a timely and effective manner. NOAA's interests also include socioeconomic impacts of HABs and their resulting effects. Multi-disciplinary investigations of regional factors responsible for development of recurrent blooms along the U.S. coast continue to be a major interest and include development of possible HAB forecasts for early warning in this area.

EPA -- To protect the integrity of ecosystems that are affected by HABs, EPA seeks to support the development of detection, control, and mitigation technologies. EPA also seeks studies examining relationships between nutrient loading, HABs and food web dynamics. Of particular interest are integrative approaches to analyzing food webs and key trophic components or pathways altered by HABs, and nutrient loading thresholds affecting these alterations. Studies examining the ecological consequences resulting from the introduction of non-indigenous HABs via invasive species pathways such as ballast water are also of interest.

NSF -- Many aspects of species-specific dynamics of plankton, macroalgal populations, and species succession that contribute to bloom formation are poorly understood. NSF's interest is in increasing our understanding of the direct and indirect causes of HABs in our coastal regions and their ecological consequences through research on the physiological and ecological bases for bloom formation, the physical and chemical attributes of coastal oceans that facilitate them, the population attributes of bloom

species, and the long-term consequences of ecosystem changes.

ONR -- Plankton blooms resulting from complex coupled physical/biological processes strongly affect the physical, optical, and acoustical properties of the coastal ocean. ONR's interest is in characterizing and forecasting these properties of blooms to improve the capability of the fleet to operate effectively within coastal environments worldwide.

NASA -- Algal pigments affect optical properties of the water in well-characterized ways. In the open ocean, it is possible to quantify pigment concentration using remote sensing techniques because phytoplankton are mostly responsible for variation variations in water color. In nearshore, estuarine, and inland waters, suspended sediments and dissolved organic compounds make the optical properties much more complex. The goal of detecting algal blooms in the presence of other colored materials is the subject of ongoing research. NASA is interested in developing remote sensing techniques that could be applied to the detection or tracking of harmful algal blooms, as well as the physiological status or taxonomic classification of bloom organisms, in nearshore coastal environments.

PROGRAM GOALS AND TOPIC AREAS

This announcement provides an opportunity for investigators to propose activities that address areas in the national problem of harmful algal blooms, as described below. The primary goal of ECOHAB is to provide support for projects that are part of an integrated national effort to address HAB problems. Thus, this interagency program will consider support for studies ranging from relatively small targeted small, targeted laboratory or field studies by individual investigators or small teams to regional studies involving larger teams of investigators conducting coordinated, well-integrated multi-disciplinary field programs.

All studies should address fundamental ecological and oceanographic questions related to HABs. Additionally, larger, regionally focused studies should attempt to determine the linkages between HAB species and their surrounding environments. Modeling efforts should be an integral part of these larger studies and these applications should also identify potential user communities for models and results. Investigators are encouraged to list specific management needs identified in the regional community, document the management sources, and also document how research results will meet those needs.

Proposals for the following types of projects are solicited:

1) Regional studies are large, multi-disciplinary, multi-institutional studies that link the ecology, physiology, behavior, and toxin production of a HAB species with the chemistry, physics, bathymetry, and meteorology of the surrounding environment. They could also include cross-regional comparison of a particular HAB problem. These studies may be 3 to 5 years in duration with a team of collaborating investigators. Proposals must address plans for sharing data and research products with the community in a timely manner and should lead to development of models for management purposes. Participation of potential users of the results in the research is encouraged. Investigators must obtain permission to submit a regional or cross-regional study from the ECOHAB Program Managers.

2) Targeted studies. Individual studies or small interdisciplinary efforts investigating fundamental ecological and oceanographic questions related to HAB events will be considered. Support for targeted studies may be requested for up to 3 years duration.

ECOHAB agencies will consider a wide range of studies for support. The following examples are to provide an indication of the scope of projects that may be considered. This list is neither exhaustive of the range of studies nor does it indicate specific priority areas.

- Characterization and detection of HAB cells, life stages, and toxins;

- Sources, fates, and consequences of HABs in foodwebs, fisheries, and protected species;
- Physiological and biochemical bases of the ecological role of toxins in bloom-forming species, including the physical and biological processes that influence the transport, fate, and effects of marine biotoxins;
- Enhancing predictive and early warning capabilities for the occurrence and impact of HABs, especially developing predictive models that will lead to HAB forecasting for identified user groups and their needs in a specific region. The investigators should include modelers and resource management personnel and detail academic, public, or private institutions where operational models might be housed;
- Longer-term consequences of ecosystem changes brought about by the increasing frequency and persistence of planktonic blooms and community alterations that can accompany macroalgal overgrowth in benthic systems;
- Prevention, control, and mitigation strategies, including investigation of mechanisms, effectiveness, and potential deleterious impacts on other parts of the ecosystem;
- Economic or sociological impacts of HABs and their resulting effects, including, for example, fish kills, beach closures or other lost recreational opportunities, and human health effects;
- Investigations focusing on emerging problems due to previously unknown HABs that have recently appeared and known HABs that have spread to new areas, to assess the seriousness of the threat and preliminary investigations of the causes;
- Investigations of the relationship between water quality (e.g., nutrient pollution) and HAB expression.

ECOHAB does not wish to solicit proposals that focus primarily on monitoring, although projects that seek to develop and test the methodology, especially as part of an integrated research program, are appropriate.

ECOHAB agencies expect that proposals previously submitted to ECOHAB and not recommended for funding will be revised and reviewer or panel concerns addressed before resubmission.

FUNDS AVAILABLE

Funding is contingent upon receipt of fiscal years 2004-2008 Federal appropriations. The anticipated funding for ECOHAB activities under this announcement approximates $5M per year over 5 years (FY2004-FY2008). Awards for targeted studies are typically on the order of $150,000 per year, total costs, for up to three years. Multi-investigator and multi-institutional applications may include correspondingly higher budgets and longer project periods, but may not exceed a 5-year project period.

If an application is selected for funding, the agencies have no obligation to provide any additional prospective funding in connection with the award in subsequent years. Renewal of an award to increase funding or extend the period of the award is based on satisfactory performance and is at the total discretion of the funding agencies. Not all proposals selected will necessarily receive funding for the entire duration of the program.

Moreover, start dates for some awards may be delayed, or proposals may be funded for a portion of the project period only. Publication of this notice does not obligate any agency to fund any specific award or obligate any part of the entire amount of funds available. Recipients and subrecipients are subject to all Federal laws and agency policies, regulations, and procedures applicable to Federal financial assistance awards.

ELIGIBILITY

Institutions of higher education and not-for-profit institutions located in the U.S., and state or local governments, are eligible under all existing authorizations. Some participating agencies are authorized to make awards to international institutions and commercial organizations located in the U.S. Federal agencies and laboratories are eligible, if they can produce certifications or documentation which that clearly show that they have specific legal authority to receive funds from another Federal agency in excess of their

appropriations. Funding for salaries of full time Federal employees will not be allowed. Applications from non-Federal and Federal applicants will be evaluated under the same review/selection process. Proposals from non-Federal applicants that are selected for funding will be funded through a project grant or cooperative agreement under the terms of this announcement. Proposals from Federal agencies or laboratories deemed acceptable and selected for funding will be funded through a medium other than a grant or cooperative agreement, such as inter- or intra-agency transfers, where legal authority exists for such funding. Note that this announcement is not proposing to procure goods and services from Federal applicants; therefore the Economy Act (31 U.S.C. 1535) is not an appropriate legal basis.

Applications are welcome from Historically Black Colleges and Universities, Hispanic Serving Institutions, and Native American Tribal Colleges. Women and members of minority groups are particularly encouraged to participate in applications.

INSTRUCTIONS FOR SUBMITTING AN APPLICATION

Applications must be submitted through the NOAA Coastal Ocean Program. However, forms and formats for completing an ECOHAB application are to be accessed through the EPA-STAR Program website as noted below. Proposals meeting the stated eligibility criteria will be evaluated by a peer review panel and correspondence peer reviewers. Final selection of awardees by the participating agencies will be determined on the basis of peer review evaluations, applicability of the proposed effort to the previously stated Agency Interests, and the availability of funds. It is anticipated that each award will be granted through and be administered by a single agency; however, several agencies may participate in making grants to individual components of multi-institutional projects. Group and/or collaborative applications involving more than one institution must be submitted as a single administrative package from one of the institutions involved. Applicants recommended for funding may be requested to resubmit their proposal, provide additional information, and modify their budget and/or work plan to comply with special requirements of the particular agency supporting their award. Awards will be subject to the terms and conditions of the sponsoring agency. The General Grant Administration Terms and Conditions of the NOAA Coastal Ocean Program are published in the Federal Register. The Environmental Protection Agency Terms and conditions may be viewed at http://es.epa.gov/ncer/guidance/ .

> **Note that all forms and formats necessary for completing an application are available at http://es.epa.gov/ncer/rfa/forms/.** (A Quality Assurance Statement is not required for the initial application).

The Application

This document requests full proposals only. The provisions for proposal/application preparation provided here are mandatory. **Applications received after the published deadline or applications that deviate from the prescribed format will be returned to the sender without further consideration.** A Proposal Checklist and an Application Package Checklist are included at the end of this section to assist in preparing and sending proposals.

Application is made through the submission of the materials described below. It is essential that the application contain all the information requested and be submitted in the formats described. If an application is considered for award (i.e., after external peer review and internal review), additional forms and other information may be requested by the agency making the award.

The original, signature copy of the application must not be stapled or bound in any way. **Other copies should be secured with paper or binder clips.**

The full application contains the following:

A. **Standard Form 424:** The applicant must complete Standard Form 424. This form will act as a cover sheet for the application and must be its first page. Instructions for completion of the SF424 are included with the form. The form must contain the original signature of an authorized representative of the applying institution. Please note that both the Principal Investigator and an administrative contact need to be identified in Section 5 of the SF424.

B. **Key Contacts:** The applicant must complete the Key Contacts Form as the second page of the submitted application.

C. **Abstract:** The abstract is a very important document. Prior to attending the peer review panel meetings, some of the panelists may read only the abstract. Therefore, it is critical that the abstract accurately describe the research being proposed and convey all the essential elements of the research. The abstract, limited to one page, should include the following information, as indicated in the example format provided.

1. Research Category: Enter ECOHAB / 2004-STAR-C1
2. Title: Use the exact title as it appears in the rest of the application. The title of the application must be brief, yet represent the major thrust of the project. Because the title will be used by those not familiar with the project, avoid highly technical words or phraseology. Do not use phrases such as "research on."
3. Investigators: Start with the Principal Investigator. Also list the names and affiliations of each major co-investigator who will significantly contribute to the project.
4. Institution: List the name and city/state of each participating university or other applicant institution, in the same order as the list of investigators.
5. Project Period: Provide the proposed project beginning and ending dates, with an approximate start date no earlier than September 1, 2004.
6. Project Cost: Provide the total request to the Federal Government for the entire project period.
7. Project Summary: This should summarize (a) the objectives of the study (including any hypotheses that will be tested), (b) the experimental approach to be used (which should give an accurate description of the project as described in the proposal), and (c) the expected results of the project and how they address the research needs identified in the solicitation.
8. Supplemental Keywords: A list of suggested keywords is provided for your use. Do not duplicate terms already used in the text of the abstract. Providing a complete set of keywords is very important.

D. **Research Plan:** The proposed project must be completely described, including identification of the problem, scientific objectives, proposed methodology, relevance to the ECOHAB program goals, and its scientific priorities. This description must not exceed fifteen (15) consecutively numbered (center bottom), 8.5x11-inch pages of single-spaced standard 12-point type with 1-inch margins. In the case of proposals describing multi-disciplinary, multi-institutional regional studies, up to 20 pages are allowed only with permission of the ECOHAB Program Managers. For applicants with prior HAB funding, a section outlining the results of the prior work and its connection, if any, with the proposed work must be included within the 15 page limit. Page limits are inclusive of figures and other visual materials, but exclusive of references. The description must provide the following information:

1. Objectives: List the objectives of the proposed research, the hypotheses being tested during the project, and briefly state why the intended research is important. This section should also include any background or introductory information that would help explain the objectives of the study.
2. Approach: Outline the methods, approaches, and techniques that you intend to employ in meeting the objective stated above (five to ten pages recommended).
3. Expected Results or Benefits: Describe the results you expect to achieve during the

project, the benefits of success as they relate to the topic under which the proposal was submitted, and the potential recipients of these benefits. Discuss the utility of the research proposed for addressing the objectives described in the solicitation (one to two pages recommended). Proposed projects may contribute directly or indirectly to training, education, outreach, and infrastructure, and may provide opportunities for under-represented groups. Such activities are encouraged by all participating agencies and the National Science Foundation, in particular, regards such broader impacts as an important criteria in evaluating support requests. Where appropriate, investigators are encouraged to summarize or highlight such activities as a short section in the project description.

4. General Project Information: Discuss other information relevant to the potential success of the project. This should include facilities, personnel, project schedules, proposed management, interactions with other institutions, etc. (one to two pages recommended). For multi-investigator projects, project management should be clearly identified with a description of the functions of each investigator within a team. Applications for multi-investigator projects, in particular, must describe plans for preservation, documentation, and sharing of data, samples, physical collections, curriculum materials and other related research and education products.
5. Important Attachments: Letters verifying the participation of unfunded collaborators must be attached, but are exclusive of the Project Description page limits. However, other appendices, letters of support, and/or other information may be included but must remain within the 15-page limit (20-page limit for multi-disciplinary regional studies).

The following sections are in addition to the Project Description.

E. **References Cited:** Reference information is required. Each reference must include the name(s) of all authors in the same sequence in which they appear in the publication, the article title, volume number, page numbers, and year of publication. This section is for bibliographic citations only and is not to be used to provide parenthetical information outside of the project description.

F. **Resumes:** The resumes of all principal investigators and important co-workers are to be provided. Resumes must not exceed two consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced standard 12-point type with 1-inch margins for each individual. Each resume should include the following information:

1. A listing of professional and academic essentials, including courtesy appointments, and mailing address, telephone number, fax number, and e-mail address;
2. A list of up to five publications most closely related to the proposed project and five other significant publications, within the last five years. Additional lists of publications, lectures, etc., should not be included.

G. **Collaborators:** The collaborators, advisors, and advisees of all investigators (principal and co-principal investigators, post-docs, and subcontractors) should be listed with current institutions. These lists should be combined and alphabetized (e.g., there should be one list per proposal). Collaborators are individuals who have participated in a project or publication within the last 48 months with any investigator, including co-authors on publications in the resumes. Unfunded participants in the proposed study should also be listed (but not their collaborators). Advisees are persons with whom the individual investigator has had an association as thesis advisor or postdoctoral sponsor. Advisors include an individual's own graduate and postgraduate advisors. This information is critical for identifying potential conflicts of interests and avoiding bias in the selection of reviewers.

H. **Current and Pending Support:** The applicant must identify any current and pending financial resources that are intended to support research related to that included in the

proposal or which would consume the time of principal investigators. This should be done by completing the appropriate form (NCER FORM 5) for each investigator and other senior personnel involved in the proposal.

I. **Budget:** The applicant must present a detailed, itemized budget for the entire project. This budget must be in the format provided in the example and not exceed two consecutively numbered (bottom center), 8.5x11-inch pages with 1-inch margins. No cost sharing is required. Multi-institution applications must include a total, consolidated budget from the lead institution and an itemized budget in the same format for each sub-contracted institution. The amount for each sub-contract will be listed under "Contracts" in the budget from the lead institution. Budgets must be checked and approved by the cognizant authority at each institution. Proposals that include Federal and non-Federal investigators or multi-institutional Federal investigators must contact Sue Banahan or Quay Dortch for instructions on formulating the budgets.

Support of ships required for field studies are a significant cost that will be evaluated in any proposals for funding, so the need should be adequately justified within the project description. As the funding mechanism for ship time is agency specific, ship costs must be included on the budget form as well as separately identified by submitting a NSF-UNOLS Ship Time Request Form (see K. below).

J. **Budget Justification:** This section should describe the basis for calculating the personnel, fringe benefits, travel, equipment, supplies, contractual support, and other costs identified in the itemized budget and explain the basis for their calculation (special attention should be given to explaining the travel, equipment, and other categories). Include an explanation of how the indirect costs were calculated. This justification should not exceed two consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced standard 12-point type with 1-inch margins per budget.

K. **Ship Use Form:** NSF requests information on ship requirements in order to schedule time on University-National Oceanographic Laboratory System (UNOLS). The investigator is responsible for sending copies to the UNOLS office and ship operators. If no ship time is required, submit the UNOLS form and indicate that no ship time is required. A UNOLS Ship Time Request Form is available in electronic format at: http://www.gso.uri.edu/unols/ship/shiptime.html . Paper copies may also be requested from UNOLS, but the electronic version is strongly preferred for ease of information exchange and processing.

Instructions for requesting ship support can be found in NSF 00-39; Proposal Submission Guidelines for Research Ship Operations, Instrumentation and Equipment, and Technical Services Support (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf0039) (NSF 00-39 replaces NSF 94-124; OMB #3145-0058; expiration date August 2000).

L. **Quality Assurance Statement:** This is not required for application submission, but will be required for any proposals EPA chooses to recommend for funding. More detailed information on requirements can be found at http://es.epa.gov/ncer/guidance/qa.html.

M. **Postcard:** The applicant must include with the application a self-addressed, stamped 3x5-inch post card postcard that which will be used to acknowledge receipt of the application and to transmit other important information to the applicant. If the applicant does not receive an acknowledgment within 30 days of the submission deadline, they should contact the program manager listed under "Contacts" in this solicitation.

How to Apply

The original and eighteen (18) copies of the fully developed application (19 in all) and one (1) additional copy of the abstract, **must be received by NOAA no later than 4:00 P.M. Eastern Time on the closing date, January 28, 2004.** Facsimile transmissions and electronic mail submission of full proposals will not be accepted.

The application and abstract must be prepared in accordance with these instructions. Informal, incomplete, or unsigned applications will not be considered. The original, signature copy of the application must not be stapled or bound in any way. The required number of copies of the application should be secured with paper or binder clips.

Send completed applications to:

Quay Dortch, ECOHAB Coordinator
NOAA Coastal Ocean Program, N/SCI2
Room 8243
1305 East-West Highway
Silver Spring, MD 20910-3281

For express mail-delivered applications, use the following phone number:
(301) 713-3338, extension 157.

Check Lists

Failure to submit all items on the checklist will result in automatic return of the proposal without review.

Proposal Check List

- SF 424 Form
- Key Contacts Form
- Abstract—1 page
- Research Plan
- 15 pages—most proposals
- 20 pages—regional proposals with permission
- Letters verifying the participation of unfunded collaborators (all other attachments are part of the Research Plan)
- References Cited
- Resumes—2 pages each for each investigator
- Collaborator List—combined and alphabetized for all investigators
- Current and Pending Support Form for each investigator
- Budget
- Budget Justification—2 pages
- Subcontract Budgets
- Subcontract Budget Justifications—2 pages/institution
- Ship Use Request Form

Application Package Checklist

- Original proposal with signatures, not stapled or clipped
- 18 copies of proposal, clipped, not stapled
- 1 extra copy abstract
- 1 extra copy combined, alphabetized, collaborator list
- 1 self addressed, stamped postcard
- Correct shipping address (Quay Dortch, ECOHAB Coordinator, NOAA Coastal Ocean Program,

N/SCI2, Room 8243, 1305 East-West Highway, Silver Spring, MD 20910-3281, (301) 713-3338, extension 157)

- Optional list of suggested mail reviewers, who are not in conflict with any investigator, including name, address, e-mail, and phone number

Guidelines, Limitations, and Additional Requirements

Projects which that contain sub-contracts constituting more than 40% of the total direct cost of the assistance agreement for each year in which the subcontract is awarded will be subject to special review. Additional justification for extensive use of such sub-contracts must be provided in which the need is discussed in relation to the accomplishment of the specific objectives of the research project.

Review and Selection Criteria

All applications are reviewed by an appropriate technical peer review panel, and ad hoc reviewers by mail. This review is designed to evaluate each application according to its technical merit. In general, each review group is composed of scientists, engineers, social scientists, economists, outreach specialists, and resource managers as appropriate to the scope of proposals received in response to this announcement. Reviewers are experts in their respective disciplines and are proficient in the technical subjects they are reviewing. Reviewers use the following criteria of approximately equal weight to help them in their evaluations:

1) The originality and creativity of the proposed research project and the appropriateness and adequacy of the methods proposed. Is the approach practical and technically defensible, and can the project be performed within the proposed time period? Will the project contribute to the generation and dissemination of scientific knowledge in the topic area of the solicitation? Is the proposal well-prepared with supportive information that is self-explanatory and understandable?

2) The qualifications of the principal investigator(s) and other key personnel, including training for research, demonstrated knowledge of pertinent literature, experience, past performance, and publication records. Will all key personnel contribute a significant time commitment to the project?

3) The availability and/or adequacy of the facilities and equipment proposed for the project. Are there any deficiencies that may interfere with the successful completion of the research?

4) The responsiveness of the proposal to the ECOHAB program goal. Does the proposal adequately address the Agency Interests specified in the announcement?

Although budget information is not used by reviewers as the basis for their evaluation of scientific merit, the reviewers are asked to provide their view on the appropriateness and/or adequacy of the proposed budget and its implications for the potential success of the proposed research. Input on requested equipment is of particular interest. Reviewers are asked to assign an overall summary score to the application of excellent, very good, good, fair, or poor.

Reviewers will also be asked to comment on other issues, including: How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of under-represented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will the activity enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to

society?

Applications that receive scores of excellent and very good from the peer review panel, based on the evaluation criteria stated above, are subjected to a programmatic review by the sponsoring agencies' program officials. Agency program officials will evaluate on the basis of peer review ratings, relevancy to the stated Agency Interests, and budget. Applications are then recommended for funding by the appropriate program managers to the sponsoring agencies for final award in accordance with that agencies' procedures.

Final award procedures for the NOAA Coastal Ocean Program can be found in its General Grant Administration Terms and Conditions published in the Federal Register (may be viewed at http://www.cop.noaa.gov/).

Notification

At the conclusion of the peer review process, program managers from participating agencies will make their funding recommendations based on the stated review and selection criteria, agency program interests, and funds available. This process varies among the ECOHAB agencies. The ECOHAB Coordinator will serve as the contact point for investigators wishing to determine application status. Applications still under consideration by one of the agencies will be considered pending until the completion of the selection process. For applications where an award recommendation is anticipated, investigators will be notified by an agency program manager directly, who, if necessary, will negotiate revisions in the proposed work and budget. The ECOHAB Coordinator will notify all other applicants of the decision not to recommend support. Final awards will be issued by the agency responsible for a specific project after receipt and processing of any specific materials required by the agency.

Customarily, applicants are notified about award recommendations within six months of the application deadline. Anonymous copies of the summary statement of the scientific review by the peer panel and anonymous copies of mail reviews will be provided to each applicant with the award or declination letter. The appropriate agency grant officer is responsible for providing recipients with notification of their grant awards.

Applications recommended for funding will require additional certifications, possibly a revised budget, responses to any comments or suggestions offered by the reviewers, and an electronic version of the revised project abstract. The sponsoring agency will contact the Principal Investigator to obtain required materials. Grant administration procedures will be in accordance with the policies of the awarding agency.

Proprietary Information

By submitting an application in response to this solicitation, the applicant grants the sponsoring agencies permission to share the application with technical reviewers both within and outside the agencies. Applications containing proprietary or other types of confidential information will be returned to the applicant without review.

Funding Mechanism

The funding mechanism for the awards issued under this solicitation to a non-Federal applicant will consist of a grant or cooperative agreement from the funding agency. All award decisions are subject to the availability of funds. In accordance with the Federal Grant and Cooperative Agreement Act, codified at 31 U.S.C. ' 6301 et seq., the primary purpose of an assistance agreement is to accomplish a public purpose of support or stimulation authorized by Federal statute rather than acquisition for the direct benefit of the Agency. In issuing a grant agreement, the funding agency anticipates that there will not be substantial agency involvement in the design, implementation, or conduct of the research. However, the funding

agency will monitor both research progress and compliance with agreement terms and conditions through annual reports provided by the grantee and contacts with the Principal Investigator.

Expectations and Responsibilities of the Assistance Recipient

Meetings. Each applicant must include in the budget funds for meetings with sponsoring agency personnel and other grantees to discuss research progress. For projects of up to 3 years in duration, budget for one meeting during the project period. For regional studies of 3 to 5 years in duration, budget for two meetings during the project period. For planning purposes, assume that each meeting will be held in Washington, DC, and will require the attendance of principal investigator(s) and co-principal investigator(s). Each meeting will be up to three days in length, as appropriate to the project size, exclusive of travel time.

Reports. As a result of the award, the recipient will agree to provide to the program manager agency-specific annual progress reports with associated summaries and a final report with an executive summary. The recipient will be required to provide copies of any peer reviewed journal article(s) resulting from the research during the project period and continue to notify the Project Officer of any papers based on the research supported that are published after termination of the assistance agreement.

Other Requirements. NOAA and NSF have specific requirements that environmental data be submitted to the National Oceanographic Data Center. In the public interest of advancing the understanding of HAB phenomena and impacts, the participating ECOHAB agencies strongly encourage funded investigators to share data and information developed during an award with the HAB research and resource management communities. This includes: publications; mathematical model results, code, and documentation; cultures; analytical techniques; assays; and other results.

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